

## Module 2: Post-Quiz Code Document

### Lesson 1

In preparation for reproducing the Indicator Table from the Global Findex database report, the data first needs to be saved as an object in your global environment.

```
# read in data
micro_world <- read_csv("micro_world.csv")
```

### Lesson 2

*Previous Progress*

```
# read in data
micro_world <- read_csv("micro_world.csv")
```

By this point of Week 2, you should now have created a data frame of the overall percentage of adults with an account by country, as well as a data frame of the percentage of adults with an account by both country and gender.

```
# overall account ownership
overall_account <-
  micro_world %>%
  group_by(economy) %>%
  summarize(account = 100 * weighted.mean(account, w = wgt))

# account ownership by gender
account_gap_female <-
  micro_world %>%
  group_by(economy, female) %>%
  summarize(account = 100 * weighted.mean(account, w = wgt))
```

### Lesson 3

*Previous Progress*

```
# read in data
micro_world <- read_csv("micro_world.csv")

# overall account ownership
overall_account <-
  micro_world %>%
  group_by(economy) %>%
  summarize(account = 100 * weighted.mean(account, w = wgt))

# account ownership by gender
account_gap_female <-
  micro_world %>%
```

```
group_by(economy, female) %>%
summarize(account = 100 * weighted.mean(account, w = wgt))
```

Building on the previous assessment, you should now have the code for obtaining both the gender gap and income gap in account ownership.

```
# gender gap in account ownership
account_gap_female <-
  micro_world %>%
  group_by(economy, female) %>%
  summarize(account = 100 * weighted.mean(account, w = wgt)) %>%
  pivot_wider(id_cols = economy,
              names_from = female,
              names_prefix = "female",
              values_from = account) %>%
  mutate(gap_female = female1 - female2) %>%
  select(economy, gap_female)

# income gap in account ownership
account_gap_inc <-
  micro_world %>%
  mutate(lower_inc = inc_q <= 2) %>%
  group_by(economy, lower_inc) %>%
  summarize(account = 100 * weighted.mean(account, w = wgt)) %>%
  pivot_wider(id_cols = economy,
              names_from = lower_inc,
              names_prefix = "lower_inc",
              values_from = account) %>%
  mutate(gap_inc = lower_incFALSE - lower_incTRUE) %>%
  select(economy, gap_inc)
```

## Lesson 4

### *Previous Progress*

```
# read in data
micro_world <- read_csv("micro_world.csv")

# overall account ownership
overall_account <-
  micro_world %>%
  group_by(economy) %>%
  summarize(account = 100 * weighted.mean(account, w = wgt))

# gender gap in account ownership
account_gap_female <-
  micro_world %>%
  group_by(economy, female) %>%
  summarize(account = 100 * weighted.mean(account, w = wgt)) %>%
  pivot_wider(id_cols = economy,
              names_from = female,
              names_prefix = "female",
              values_from = account) %>%
  mutate(gap_female = female1 - female2) %>%
```

```

select(economy, gap_female)

# income gap in account ownership
account_gap_inc <-
  micro_world %>%
  mutate(lower_inc = inc_q <= 2) %>%
  group_by(economy, lower_inc) %>%
  summarize(account = 100 * weighted.mean(account, w = wgt)) %>%
  pivot_wider(id_cols = economy,
              names_from = lower_inc,
              names_prefix = "lower_inc",
              values_from = account) %>%
  mutate(gap_inc = lower_incFALSE - lower_incTRUE) %>%
  select(economy, gap_inc)

```

Finally, you should now have the code necessary to reproduce the Indicator Table by joining the data frames that you've created in the two previous assessments.

```

# indicator table
indicator_table <-
  full_join(overall_account,
            account_gap_female,
            by = "economy") %>%
  full_join(account_gap_inc,
            by = "economy") %>%
  mutate(account = round(account),
         gap_female = round(gap_female),
         gap_inc = round(gap_inc))

```

If you are interested in creating an auxiliary table that shows only the statistically significant gaps, you will first need to calculate the margin of error for each country as defined in the footnote of Table A.1 from the Global Findex database report. The gaps that are not statistically significant (i.e., gaps falling within the margin of error) are replaced with a dash (–), and the `case_when` function is used to accomplish this task. Consider exploring the help page of the `case_when` function to familiarize yourself with its usage.

```

# margin of error
moe <-
  micro_world %>%
  group_by(economy, pop_adult) %>%
  summarize(design_effect = n() * sum(wgt^2) / (sum(wgt)^2),
           moe = 100 * sqrt(0.25 / n()) * 1.96 * sqrt(design_effect))

# auxiliary table
aux_indicator_table <-
  full_join(overall_account,
            account_gap_female,
            by = "economy") %>%
  full_join(account_gap_inc,
            by = "economy") %>%
  full_join(moe,
            by = "economy") %>%
  mutate(account = round(account),
         gap_female =
           case_when(
             abs(gap_female) > moe ~ as.character(round(gap_female)),

```

```
      TRUE ~ "-"
    ),
    gap_inc =
      case_when(
        abs(gap_inc) > moe ~ as.character(round(gap_inc)),
        TRUE ~ "-"
      ) %>%
    select(economy, account, gap_female, gap_inc)
```